AMENDMENTS TO THE CLAIMS

1. (currently amended) A method for manufacturing ~~aluminium~~ aluminum alloy parts with precipitation hardening comprising :

subjecting at least two elements made from the same alloy or different alloys to heat treatment at a temperature T for at least $2t_1$, wherein t_1 comprises a minimum treatment duration at temperature T leading to a specific melting peak energy defined by Differential Scanning Calorimetry ~~AED~~ and less than 1 J/g;

friction stir welding said at least two elements, and thereafter;

conducting a solution heat treatment, and

quenching welded parts.

2. (original) A method according to claim 1, wherein the specific melting peak energy is less than 0.5 J/g.

3. (original) A method according to claim 2, wherein the specific melting peak energy is less than 0.1 J/g.

4. (original) A method according to claim 1, wherein the temperature T is less than the alloy burning temperature by not more than 20°C, or if different alloys are used, the lowest burning temperature of these alloys.

5. (original) A method according to claim 1, wherein the burning temperature of the alloy is less than 500°C, and the treatment duration is at least 24 h.

6. (original) A method according to claim 5, wherein the treatment duration is at least 48 h.

7. (original) A method according to claim 1, wherein the heat treatment is done at a homogenization stage before rolling, extrusion, or forging.

8. (original) A method according to claim 1, wherein the heat treatment is reheating between two hot rolling, extrusion, or forging passes.

9. (original) A method according to claim 1, wherein the heat treatment is conducted on a partly finished rolled or forged product before welding.

10. (original) A method according to claim 9, wherein the heat treatment is followed by quenching.

11. (original) A method according to claim 1, wherein at least one of the alloys is a 2024 alloy having a manganese content by weight of less than about 0.3%.

12. (original) A method according to claim 1, wherein at least one alloys comprises a copper-containing alloy of the 7xxx series having a chromium content by weight of less than about 0.15%, and a zirconium content by weight of less than about 0.09%.

13. (original) A method according to claim 12, wherein the copper content is at least about 0.5%.

14. (original) A method according to claim 1, wherein inert gas is flushed over the surface of a welding zone, during welding.

15. (withdrawn and currently amended) A part comprising at least two elements made from ~~aluminium~~ aluminum alloy with precipitation hardening, welded by friction stir welding and treated after welding by solution heat treatment and quenching, wherein the grain size in a welded zone of said part is less than about 200 μm after solution heat treatment and quenching, and wherein at least one of said elements is made from a copper-containing alloy of the 7xxx series with a chromium content of less that 0.15 wt-% and a zirconium content of less than 0.09 wt-%.

16. (withdrawn) An aeronautical construction comprising a part as claimed in claim 15.

17. (withdrawn) A friction stir welded part, wherein in a welded zone thereof, the micrography comprises a fine crystalline structure with a relatively homogenous grain size between 50 and 200 μm.

18. (withdrawn) A friction stir welded part, of claim 17, having an average grain size in said welded zone on the order of 120 μm.